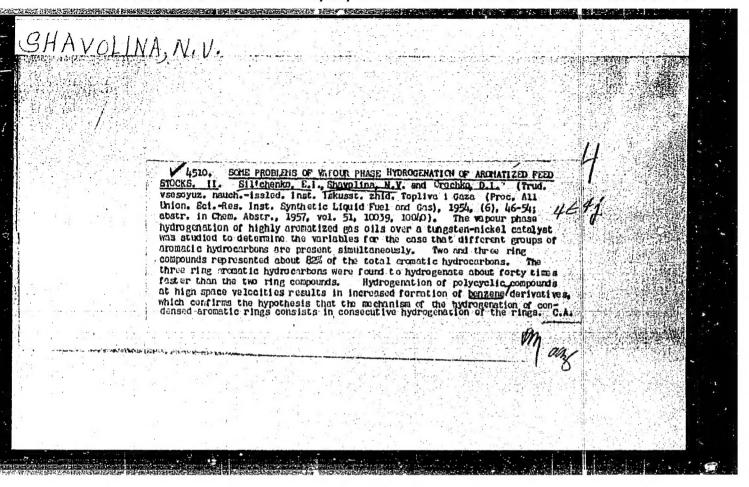


PERKOVSKIY, Boris Borisovich; SHAVNYA, A.A., red.; ZIMA, Ye.G., tekhn.

[Protect the beauty and natural resouces of your country] Beregi krasotu i bogatstvo rodnoi Zemli. Minsk, 1962. 37 p. (Obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii
Belorusskoi SSR, no.29) (MIRA 15:2)

(White Russia—Wildlife, Conservation of)



SIL'CHENKO, Ye.I.; KARZHEV, V.I.; OROCHKO, D.I.; VAVUL, A.Ya.; ROBOZIEVA, Ye.V.; BIRMAN, M.I.; SHAVOLINA, N.V.; MASINA, M.P.; GONGHAROVA, N.V.

In memory of Mariia Sergeevna Sudzilovskaia. Trudy VNIGI no.6: 146-158 '54.

(Sudzilovskaia, Mariia Sergeevna, 1904-1953)

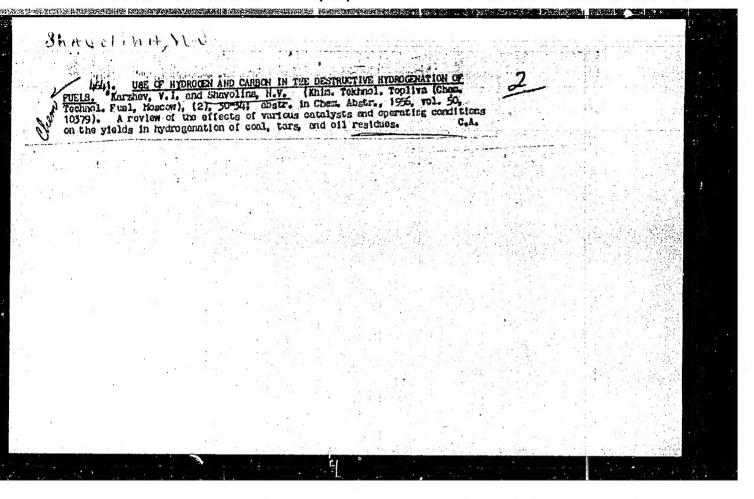
SULIMOV, A.D.; KARZHNV. V.I.; ZHOKHOVSKAYA, T.V.; OLEVSKIY, V.H.; VENDEL'SHTEYN, Ye.G.; SIL'CHENKO, Ye.I.; SHAVOLINA, N.V.; VOYTEKHOV, A.A.

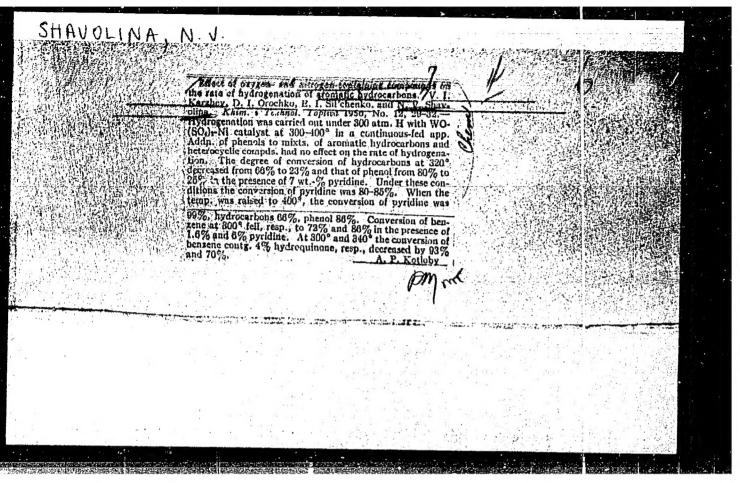
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Producing the raw material for synthetic fibers using petroleum products.

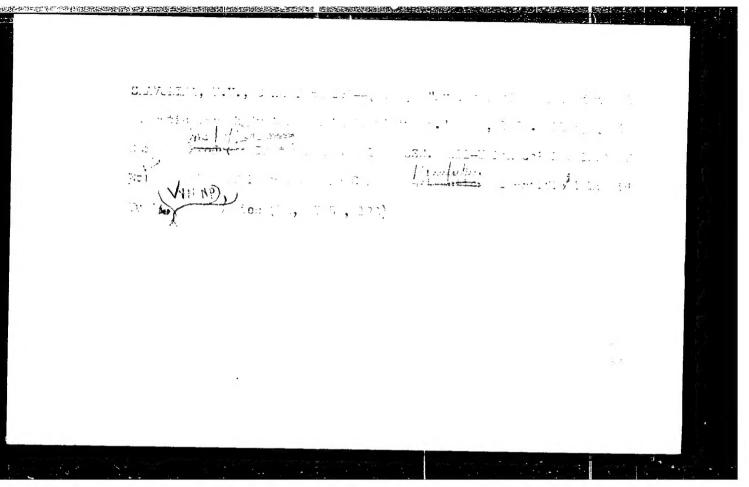
Khim.i tekh.tepl. no.1:33-43 Ja *56.

(Petroleum) (Fibers)





APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720014-9"



S/081/63/000/004/005/051 B102/B186

AUTHORS: Shavolina. N.

Shavolina, N. V., Orochko, D. I., Sil'chenko, Ye. I.

TITLE:

Some problems of macroscopic kinetics of hydrogenation of

aromatic hydrocarbons in flowing operation

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 4, 1963, 78-79, abstract 4B515 (Tr. Vses. n.-i. in-t po pererabotke nefti i gaza i

polucheniyu iskusstv. zhidk. topliva, no. 8, 1959, 4-19)

TEXT: In the case of small reaction rates toluene hydrogenation may be formally described by the equation of pseudomenomolecular inhibiting reactions. With high rates the hydrodynamic conditions of the experiment have an effect on the depth of transformation of the crude. A reduction in grain size of the industrial W-Ni catalyst (Cat) on the carrier causes an increase in the macroscopic rate of c_6H_6 hydrogenation, which indicates

the inhibiting effect of the diffusion of reagents in the Cat pores. Inhibition is particularly intense in the first stages of hydrogenation, when the surface reaction mate is high. The mean effectiveness of the internal surface of industrial Cat (tablets 10 mm in diam, 10 mm in height) Card 1/2

Some problems of macroscopia.... S/C81/63/000/004/005/051
B102/B186

amounts to ~50-60% when hydrogenating a crude containing ~70% C He. The effectiveness of the internal surface of the Cat may be increased by reducing the Cat grain size and by reducing the C₆H₆ concentration in the crude; it is decreased when the amount of circulating H₂ is increased.

Abstructer's note: Complete translation.

SHAVOLOV, Sergey Yevgen'yevich; BRODOTSKIY, A.I., red.; ZLOTNIKOVA, 10:41-12d-va; SHIBKOVA, R.Ye., tekhn. red.

[Engineering methods for the design of the elements of paper-making machines and various devices] Inzhenernye metody rascheta elementov bumagodelatel'nykh mashin i razlichnykh ustroistv. Pererabotannoe i dopolnennoe izdanie knigi "Soportivlenie materialov." Moskva, Goslesbumizdat, 1963. 540 p. (MIRA 16:8)

(Papermaking machinery--Design and construction) (Strength of materials)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720014-9"

SHAVCLOV, S.Ye., kand.tekhn.nauk

Displacement of the cross sections of a rectilinear rod consisting of elements with continuously changing cross sections. Truly LTITSBP no.8;136-192 '61. (MIRA 16:9) (Elastic rods and wires)

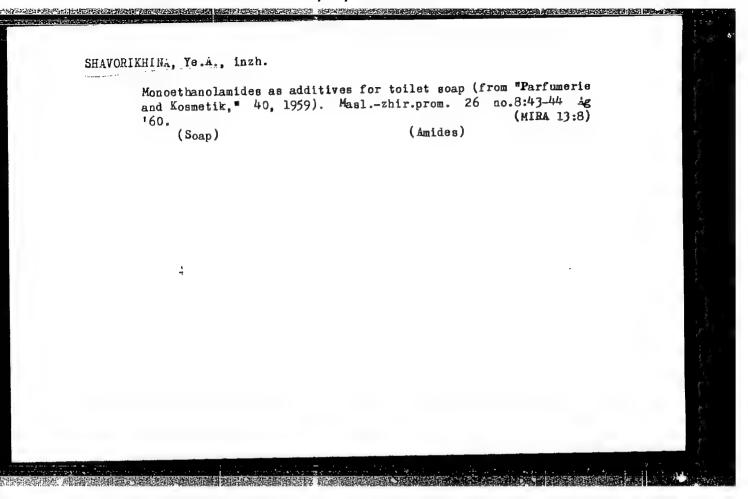
SHAVOLOV, S.Ya., CAMERCEGNA, A.N.

Mining the method of foost moments for determining the displacement of the cross sections of beams with variable rigidity. Trudy
LTTTSBF no.14;32-39 '64.

(MIRA 18:5)

SHAVOLOV, 3.%.

Coefficients of the mean tangential stress of annular sections and their application in determining the deflection of the shafts of expermaking machines. Toddy LVITSBP no.14:40-58 184. (MIRA 18:5)



APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720014-9"

SHEVORIKHINA, Ye.a., inzh.

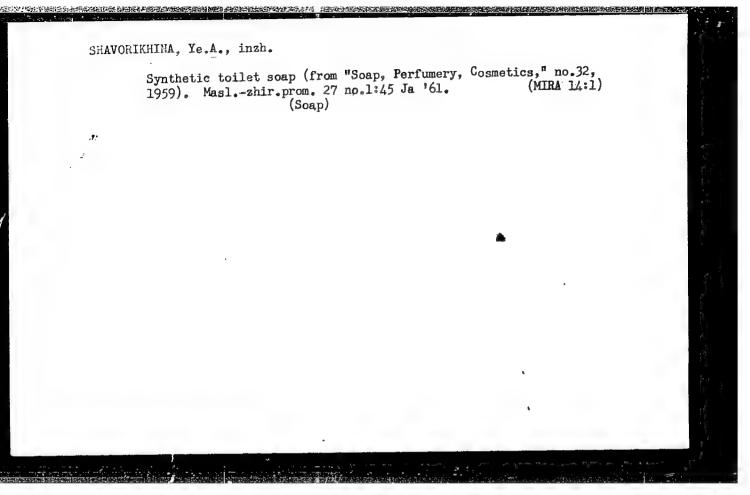
Waterless cleansing paste for hands (from "Sonp, Perfumery and Cosmetics," no.10, 1959). Masl.-zhir.prom. 26 no.8:44 Ag (MIRA 13:3)

(United States--Cleaning compounds)

SHAVORIKHINA, Ye.A., inzh.

Preparations for the protection of the skin. Masl.-zhir.prom. 26
no.l0:47 0 '60.
(Cosmetics) (Skin--Care and hygiene)

(Cosmetics)



SHAVORTHINA, Ye.A., inzh.

Combinations of anion and cation surface active substances (from "American perfumer and aromatics," April, 1960). Masl.-zhir. prom.

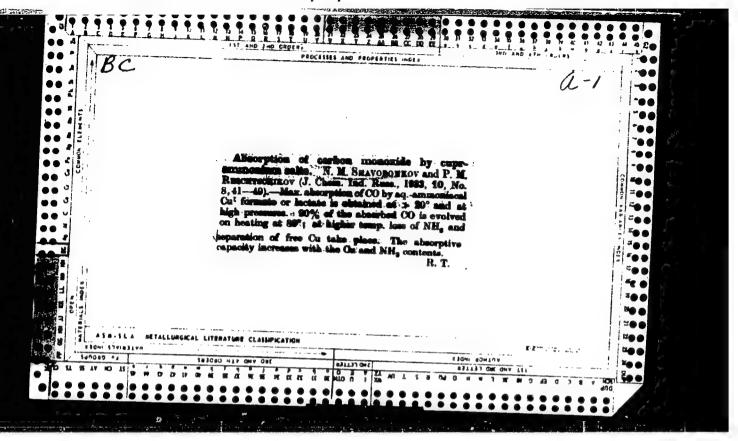
(KIRA 14:11)

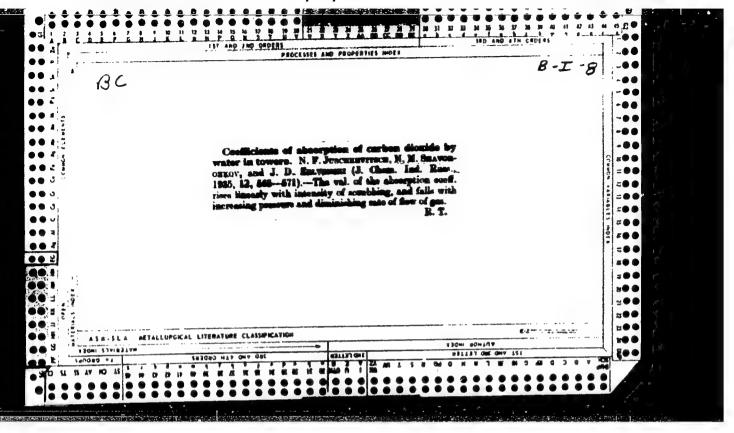
(Cosmetics) (Surface active agents)

SHAVORIKHINA, Ye.A., inzh.

New dentifrices. Masl.-zhir. prom. 29 no.10:42-43 0 '63.

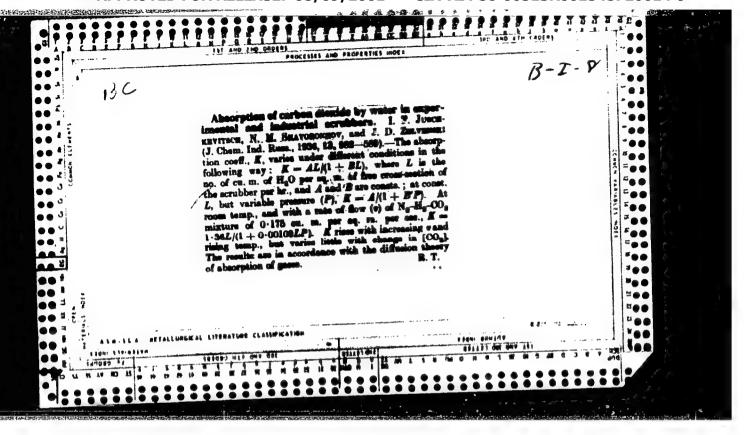
(MIRA 16:12)

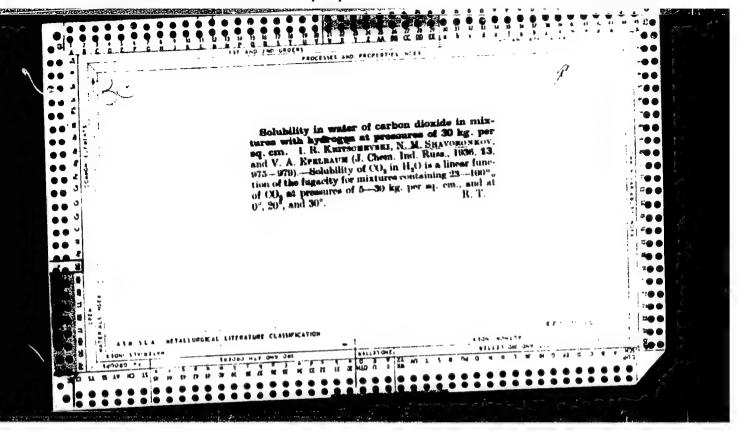


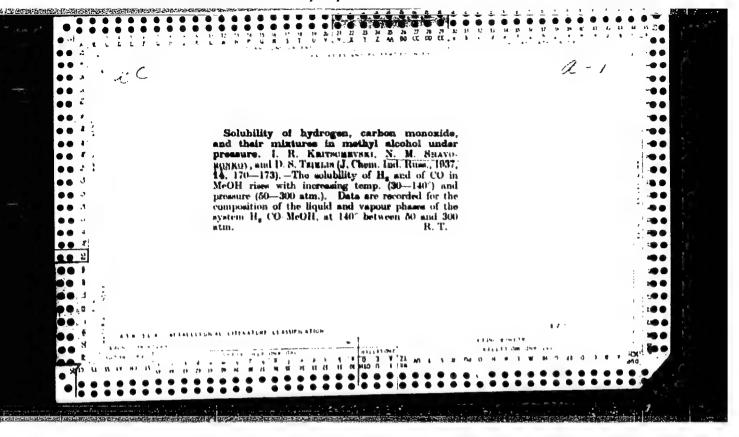


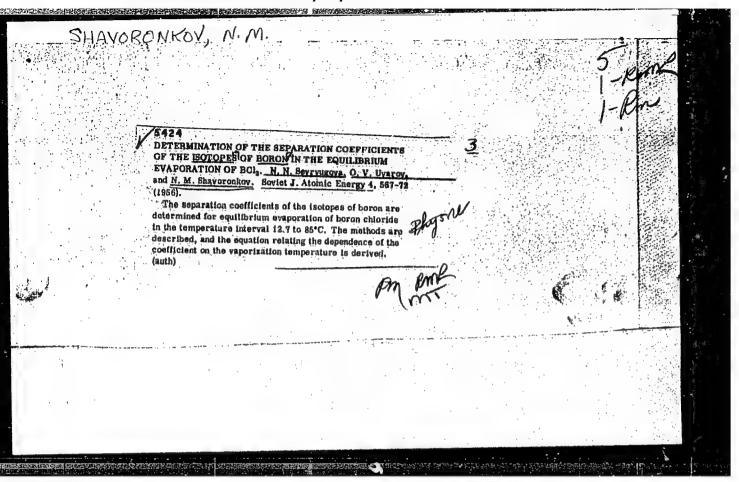
"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R001548720014-9









SHAVO WORKOV, M. M., CHEMCHYKH, G. H., STABLITSOV, L. V. and BABKOV, S. I.

"Die Kinetik der Isotopenanreicherung in vielstufigen Kolonnen."

Meport presented at the 2nd Intl. Conf. on Stable Isotopes.

Bast German Academy of Sciences, Inst. of Applied Physical Naterial

Leipzig, GDR, 30 Oct - 4 Nov 1961.

SHAVORONHOV, N. M., MALYUSOV, V. A., MALAFRYMV, N. A., OLLOV, V. YU. & URITA, N. M.
"Uterschung über der Trenneg der Isotope des Lithiums durch Molekulardestillation."
Report presented at the 2nd Conf. on Stable Isotopes.
Bast German Academy of Sciences, Inst. for Applied Physical Material.
Leipzig, GD:, 30 Oct - 4 Nov 1961

SHAVORONKOV, N. M.; STRELTSOV, L.V.; CHERNYKH, G.N.; BABKOV, S. I.;

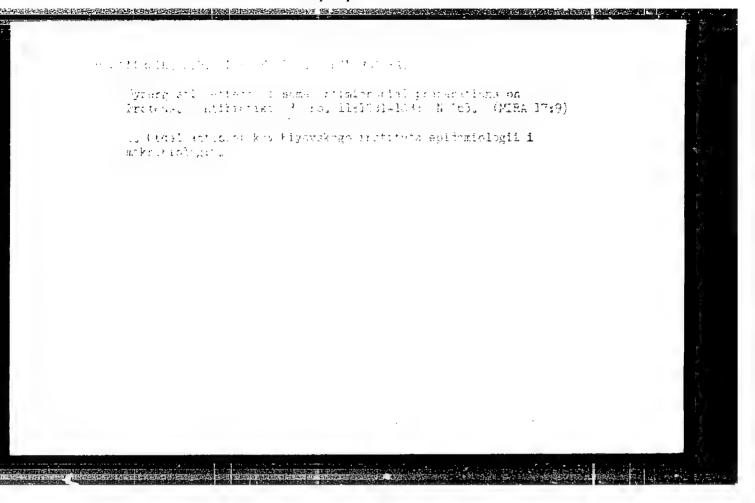
Uber die zeitliche Annaherung an den stationaren Zustand bei der Trennung stablier Isotope in Kolonnen. (Berechnungen auf einer elktronischen Rechenmaschine)

Third Working Conference on Stable Isotopes 28 Oct to 2 November 1963, Leipzig.

CHERNOMORDIK, A.B.; FILOSOFOVA, T.G.; SHAVORSKAYA, L.D.

Sensitivity of diphtheria bacteria to the macrolide antibiotics: erythromycin, oleandomycin and sekazin. Antibiotiki 9 no.2:170-172 F '64. (MIRA 17:12)

1. Otdel antibiotikov Kiyevskogo instituta epidemiologii i mikrobiologii.



IVANOVA, B.I.; SHAVORSKAYA, T.A.

Results of the testing of some spic plants in the Botanical Garden of the Academy of Sciences of the Moldavian S.S.R. Izv. AN Mold. SSR no.12:49-65 '62. (MIRA 18:4)

MESHCHERYAKOV, Fedor Yeliseyevich. Prinimal uchastiya SHAVR, V.M.
GOGOLIN, A.A., kend.tekhn.neuk, retsenzent; OCHERETYANYY, M.A.,
inzh., retsenzent; KREST'YANINOVA, Ye.M., red.; MEDRISH, D.M.,
tekhn.red.

[Principles of refrigeration engineering] Osnovy kholodil'noi tekhniki. Moskva, Gos.izd-vo torg.lit-ry, 1960. 375 p.
(MIRA 14:3)

l. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti (for Gogolin).

(Refrigeration and refrigerating machinery)

LYSENKO, B.M., kand.tekhn.nauk; MARTSINKOVSKIY, V.A.; inzh., SERIKOV, S.S., inzh., SHAVRA, B.M., inzh.

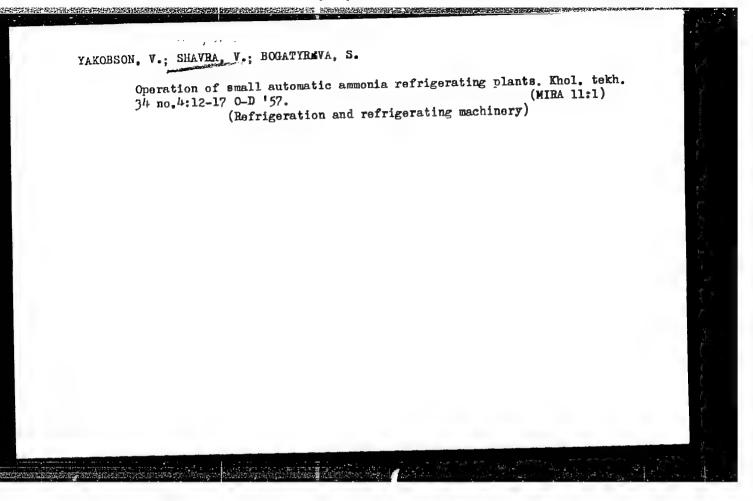
Experimental device for studying the vibration resistance of feed pump rotors. Energomashinostroenie 6 no.5:33-35 My '60. (MIRA 13:9)

(Pumping machinery--Vibration)

YAKOBSON, V., kandidat tekhnicheskikh nauk; SHAVRA, V., inzhener.

Autematization of commercial type ammenia refrigerating plants.

Rhol.tekh.33 ne.2:11-17 Ap-Je '56. (MRA 9:9)
(Refrigeration and refrigerating machinery)(Autematic centrel)



Testing an automatic Freon unit with direct cooling of several storage rooms [with summary in English]. Khol.tekh. 35 no.6: 15-21 N-D '58. (MIRA 12:1)

1. Vsesoyuznyy nauchno-issledovatel skiy institut kholodil noy promyshlennosti.

(Refrigeration and refrigerating machinery)

14(1)

sov/66-59-4-9/28

AUTHOR:

Shavra, V., Engineer

TITLE:

Water Regulating Valves for Refrigeration Machines

PERIODICAL:

Kholodil'naya tekhnika, 1959, Nr 4, pp 37-41 (USSR)

ABSTRACT:

The absence of automatic water regulating valves in refrigeration units of 3-30,000 st kcal/hr is a source of important water losses. With the exception of the IF-49 unit, produced by the Moscow Plant "Iskra", none of the installations currently supplied include water regulating valves as standard equipment. In the VNIKhI Laboratory comparative tests have recently been conducted with two water regulators, the IVR-1.5 produced by "Iskra" Plant, under the supervision of N. Kudryavtsev, and one of the latest models, the AV-1/2", made by the firm "Danfoss". The article describes the conditions under which the tests were carried out and the results, which have led to the following conclusions: the IVR-1.5 is a highly sensitive device but has the drawback of the regulating spring being located under the water and therefore unprotected against corrosion. At

Card 1/2

Water Regulating Valves for Refrigeration Machines

SOV/66-59-4-9/28

the present time the "Iskra" Plant is engaged in re-designing the IVR-1.5 in compliance with the recommendations of VNIKhI.

There are: 3 diagrams, 2 graphs and 7 references, 6 of which are Soviet and 1 Danish.

and I Danish

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel skiy institut kholodil noy promyshlennosti

(All-Union Scientific Research Institute of Refrigeration Industry)

Card 2/2

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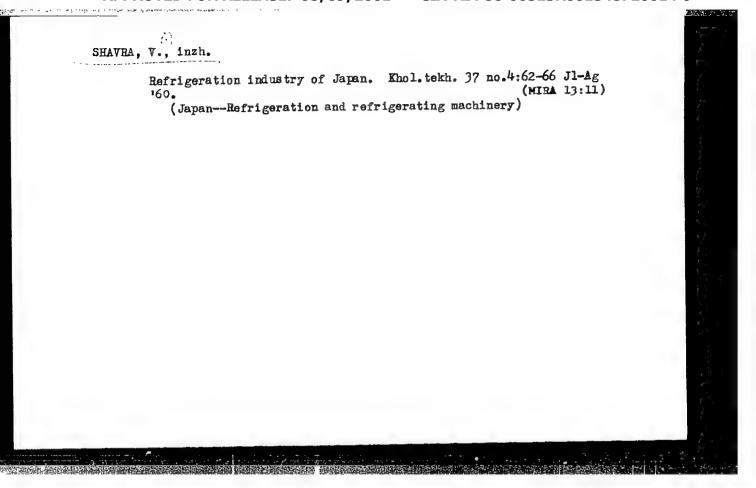
sov/5318

Shavra, Viktor Mikhaylovich

Avtomatizirovannyye malyye freonovyye kholodil'nyye ustanovki s neskol'kimi okhlazhdayemymi ob"yektami; nauchnoye soobshcheniye (Automatized Small Freon Cooling Units With Cooled Objects; a Scientific Report) Moscow, Gostorgizdat, 1960. 45 p. 4,000 copies printed.

- Sponsoring Agency: Glavniiproyekt pri Gosplane SSSR. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti imeni A. I. Mikoyana.
- Scientific Ed.: V. B. Yakobson; Ed.: Ye. F. Maslova; Tech. Ed.: L. M. Dvorkin.
- PURPOSE: This booklet is intended for technical and engineering personnel engaged in the operation and design of small freon refrigeration units.

Card 1/3



SHAVRA, V.M., inzh.

Effect of the superheating of the vapor flowing from the evaporator on the performance of small refrigerating machinery. Khol.tekh. 39 no.6:20-27 N-D 162. (MIRA 15:12)

SHAVRA, V.M., inzh.

Study and design of a freon regenerative heat exchanger. Khol. tekh. 40 no.2:18-24 Mr-Ap '63. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.

(Refrigeration and refrigerating machinery)
(Heat—Transmission)

SHAVRA, V.M., inzh.

Ffficiency of the regenerative cycle in small Freon refrigerating machines. Khol. tekh. 40 no.5:14-18 S-0 '63. (MIRA 16:11)

l. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.

KAFLAN, Leonic Gdal'yevich; SEAVRA, V.E., retsenzent; KURYLEV,
Ye.S., spets. red. THECLEVAT, N.G., red.

[kepair of the automatic control equipment of refrigeration
plants] Remont priborov avtomatiki kholodil'nykh ustenovok.

12d-vo "Fishchevala promyshlennost", 1964. 46 p.

(MIRA 17:7)

KONONOV, Yu.G.; SHAVRA, V.M., kand. tekhn. nauk Two-position and proportioning pressure regulators for Freen refrigerating machinery. Khol. tekh. 42 no.2:26-30 Mr-Ap 165.

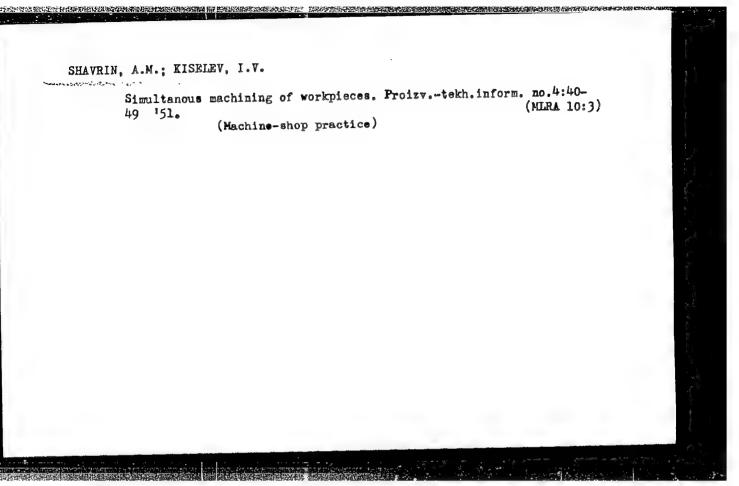
(MIRA 18:5)

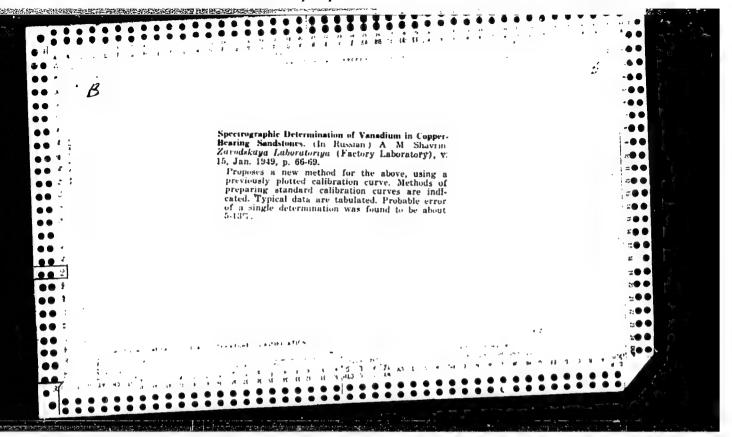
1. Orlovskoye SKBPribor (for Kononov). 2. Vsesoyuznyy nauchnoissledovatel skiy institut kholodil noy promyshlennosti (for Shavra).

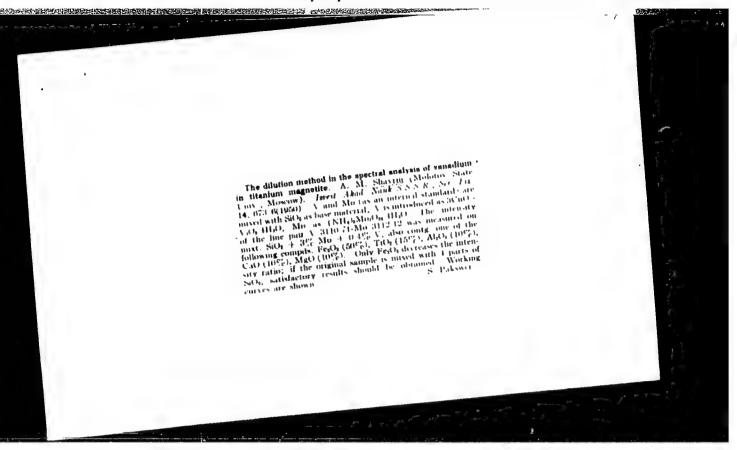
CIA-RDP86-00513R001548720014-9" APPROVED FOR RELEASE: 08/09/2001

SHAVRA, V.M., inzt.

Testing thermostatic expansion valve under factory conditions. hholitakh. 38 no.4:54-57 Jl-Ag '61. (MIRA 15:1) (Valves--Testing)







CIA-RDP86-00513R001548720014-9 "APPROVED FOR RELEASE: 08/09/2001

USSR/Minerals - Spectral analysis

Card 1/1

Pub. 43 - 48/97

Authors

Makhnev, Yu. A.; Simanov, V. A.; and Shavrin, A. M.

Title

Application of the method of dilution during spectral analysis of powders

Periodical:

Izv. AN SSSR. Ser. fiz. 18/2, 272-273, Mar-Apr 1954

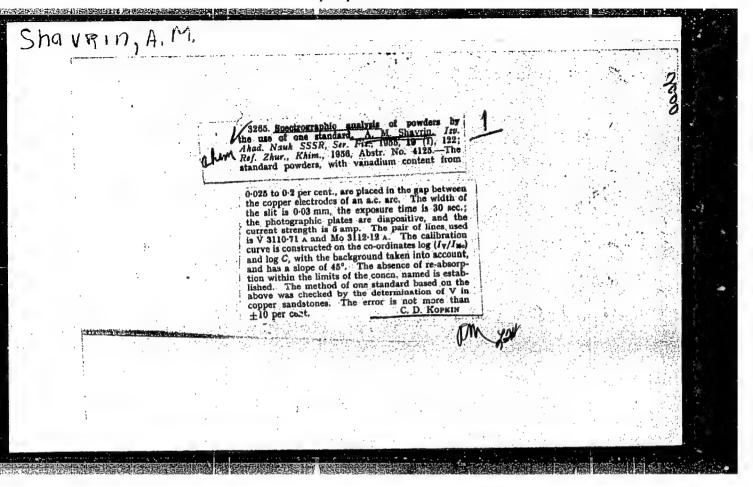
Abstract

It was shown by one of the authors that the application of the method of diluting the analyzed sample of rocks or slags with silicon oxide makes it possible to eliminate the effect of different analyzed objects on the spectral analysis results. The results obtained with the dilution method in determining the content of Ni and Mn in various rocks and ores are briefly described. The probable error in determination was ± 6.5%.

USSR references (1949 and 1950).

Institution : The A. M. Gorkiy State University, Molotov

Submitted



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GLUSHKOVA, L.A.; ZOTIN, M.A.; SHAVRIN, A.M.

Rxperimental study on the relation of the relative intensity
of vanadium, chronium, and nickel spectrum lines to concentration in standard samples. Fiz.shor. no.4:483-487 '58.

(MIRA 12:5)

1. Permskiy gosudarstvennyy universitet.
(Vanudium-Spectra) (Chronium-Spectra) (Nickel-Spectra)

507/48-23-9-11/57

24(7) AUTHORS:

Shavrin, A. K., Zetin, M. A.

TITLE:

On the Problem of the Influence of the Composition of Pulverulent

Substances on the Relative Intensity of Spectral Lines

PERIODICAL: Izvestiya Akademin nauk SSSR. Seriya fizioheskaya, 1959,

Vol 25, Nr 9, pp 1077-1079 (USSR)

ABSTRACT:

A report is delivered concerning investigations of the relative line intensities in systems on the tasis of SiO, and carbonates of alkaline earth elements. The samples were evaporated from copper electrodes. The ratio of the intensities of a Cd-line to three Zn-lines is measured. In the samples the SiO2-content is varied from 0 to 98.5% and that of carbonates from 98.5 to 0%. The mixture contains 1.5% ZnO. An alternating current arc is used according to the scheme of N. S. Sventitskiy, with copper electrodes in which the material to be investigated was located in the hole. Figure : is a graphical representation the composition of of the values $lg(I_{Od}/I_{Zn})$ depending upon the systems SiO2-MgCO3, SiO2-CaCO3, SiO2-SrCO3, and SiO2-BaCO3, where I_{Cd} and I_{Zn} denote the line intensities. The complex dependence of these relative intensities as seen from the dia-

Card 1/2

gram is the result of the variation of the absolute line in-

507/48-23-9-11/57

On the Problem of the Influence of the Composition of Pulverulent Substances on the Relative Intensity of Spectral Lines

tensities of cadmium and zinc. This is brought into connection with the chemical interaction of the components, in which case the melting of the alkaline earth carbonates and the production of a metal king on the electrode plays an important part. The results obtained prove the existence of a chemical interaction between the SiO₂ and the CaCO, on the electrode, whereas the absence of a marked minimum in the SiO₂-MgCO₃ system

points in the direction of an incomplete transformation of the mixture components into silkentes. The behavior of the relative intensibles on the CaCO_x-SrCO_x system is explained by the lack

of the chemically active component SiO, . S. M. Bobrova took part in the experimental part of this work. There are 2

figures.

ASSOCIATION: Permskiy gos. universitet im. A. M. Gorikogo

(Ferm' State University imeni A. M. Gor kly)

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S/058/62/000/006/048/136 A061/A101

AUTHORS:

Zotin, M. A., Shavrin, A. M.

TITLE:

A study of the mutual effect of silicon dioxide and carbonates of alkaline-earth elements on the relative intensity of nickel-titanium and nickel-vanadium spectral line pairs

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 14, abstract 6G111 ("Uch, zap, Permsk, un-t", 1961, v. 19, no. 1, 123 - 124)

The results of a study of the relative intensity of Ni-Ti and Ni-V TEXT 5 spectral line pairs under partial evaporation of the mixtures are presented. The relative intensity of the pairs has been studied: $Ni\lambda = 2992.595 - Ti\lambda =$ = 2956.131, Ni λ = 2992.595 - V λ = 3066.375 R. The uniformity of the effect, in the presence of SiO2, of elements belonging to one group of the periodic system on the relative spectral line intensity has been confirmed.

[Abstracter's note: Complete translation]

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PHASE I BOOK EXPLOITATION SOV/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960.
Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

Eds. (Title page): G. P. Skornyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skornyakov; Ed. of Publishing House: M. L. Kryshova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scienmembers of apectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results. COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analyles in controlling the chemical composition of various materials sis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical indusin ferrous and nonferrous metallurgy, geology, chemical indusin ferrous and nonferrous metallurgy, materials for the press. Chentsova for help in preparing the materials for the press.

Chentsova for help in preparing the materials for the press.

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Materials of the Third Ural Conference (Cont.)

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COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis is in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to 0. V. Chentsova for help in preparing the materials for the press.

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S/194/61/000/005/010/078
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AUTHORS: Gorin, A.V., Grosman, V.A., Drephonskiy, L.V.,
Rayevskiy, B.M., Armoy, L.P., Storochenko, E.P.,
Fedorov, Yu.P., Shavrin, C.D., and Shamov, V.P.

TITLE: A mobile rediometric emergency laboratory using semiconductor devices

PERIODICAL: Referativnyy shurnal. Avtenatika i radioalelitronika,
no. 5, 1961, 31-32, abservat 5 A235 (Dokl. nauchn.
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no. 5, 1961, 31-32, abservat 9 A235 (Dokl. nauchn.
no. 5, 1961, 31-32, abservat 9 Gorden reboty za 1959, Z., L., 1960, 18-19)

TEXT: A description is given of a complete mobile laboratory,
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A mobile radiometric emergency...

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culculating machines (\(\mathbb{P}\)-\(\m

SHAVLIN, H. V.

Experience of raild working of metals by cotting Moskva. Gos. transp.

2nel.-dor. 12d-vo, 1952. 132 j. (64-18333)

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1. Gutting machines. 2. Metal cutting.

33952 s/665/61/000/003/016/018 E194/E420

26. 1512

\UTHORS:

Daletskiy G.S. Shavrin, N.V.

The construction and electrical characteristics of batteries of silicon photo-converters TITLE :

Akademiya nauk SSSR. Energeticheskiy institut. Teploenergetika no.3, 1961. Poluprovodnikowyye SOURCE.

preobrazovateli solnechnoy energii. 137-151

Baiteries of silicon photo-converters are made up in many different forms according to application. Single crystal silicon is produced as round rods it is expensive and so it is cheapest to make the individual cells circular, however, when it is important to save space in the generator the cells are made relangular, even though this involves some loss of siliton, The diameter of a circular photo-converter ranges from 22 to 45 mm, depending upon the original size of the single crystal. In sunlight of 100 mW/cm² with an element temperature of 30°C. the electrical characteristics are as follows: efficiency at maximum output 7 to 9% maximum output 7 to 9 mW/cm2; voltage ar maximum output 0.38 to 0.40 V. current at maximum

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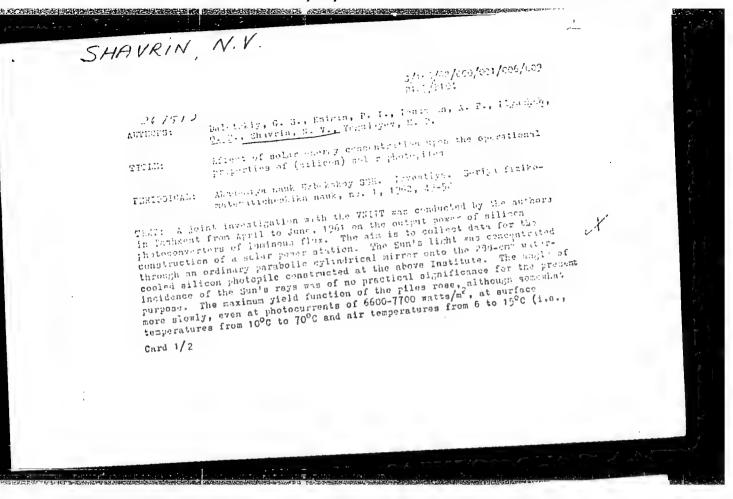
output 20 to 24 mA/cm2 Rectangular elements are made up in the sizes shown in Table 1. These photo converters are made up into sections of eight in series which gives sufficient voltage to harge an accumulator and the sections are connected in parallel 's form batteries. Various methods of mounting the sections and batteries are described. The batteries are mounted on tripods and gimbals according to application. For example, a portable battery for supplying portable radio equipment has an overall size of $250 \times 250 \times 20$ mm weight of 900 g. output voltage of 9 V, output current of 450 mA in a radiation of 100 mW/cm2 at an element temperature of 30°C. As it is necessary to orient the batteries towards the sun every half hour or so, the authors have designed and tested batteries which automatically follow the sun. The use of reflectors to increase the output of batteries is discussed and the theory of a reflector in the form of a truncased cone is briefly explained. It is shown that the optimum angle between the incident rays and the reflector surface is 10. Tests were made of the increase in output of a battery of 40 photo converters as function of the area of metal reflector Card C/4

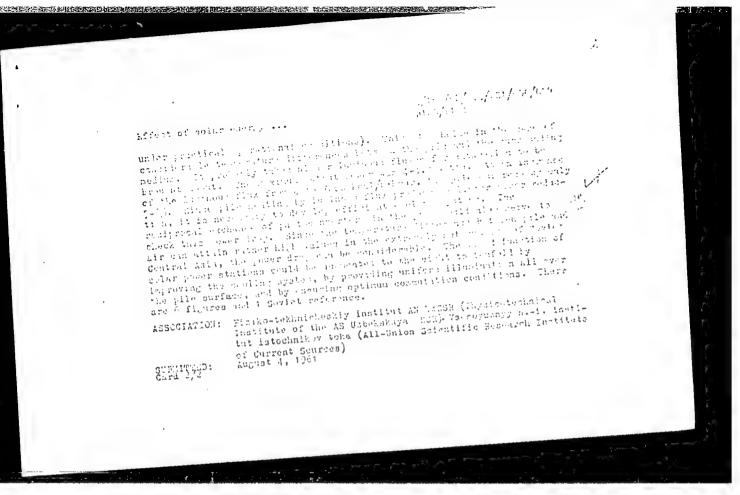
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The construction and electrical ... E194/E420

and the battery output is found to increase almost in direct proportion to the area of the reflector. Thus, in one case using four reflectors each equal in surface to the area of the solar battery, the output of the battery was increased by a factor of 1.9 by using the reflectors. When reflectors are used the short it in terminal of the battery is increased much more than the power output. With quite simple reflectors it is possible to intrease the specific output of a battery by a factor of up to 2.2 and to obtain a power of 1.0 to 1.6 W from an area of 1 dm² with an illumination of 100 mW/cm². An experimental battery has been mad- up with four reflectors, the useful area of the photomoverters is about 4.5 dm², the output power is 6.5 W with in ident radiation of 100 W/cm² and an element temperature of 100 for corresponding to a specific output of 1.44 W/dm². There are 16 figures and 4 tables.

Card 3/4





1,1096

s/058/62/000/008/129/13¹⁴ A160/A101

26.2420 AUTHORS:

Daletskiy, G. S., Shavrin, N. V.

TITLE:

The design and the electric characteristics of batteries made of

silicon photoconverters

Referativnyy zhurnal, Fizika, no. 8, 1962, 43, abstract 8-3-86p PERIODICAL:

(In collection: "Teploenergetika". No. 3, Moscow, AN SSSR, 1961,

137 - 151)

A description is given of various types of silicon photoconverters differing by their dimensions, their shape, the geometries of the current collectors, and by the fittings. The diameter of round-shaped photoconverters varies from 22 to 45 mm, their efficiency - from 7 - 9%, their maximum specific power - 7 - 9 milliwatt/cm² at a maximum tension of 0.38 - 0.4 volt. The current per 1 cm² is 20 - 24 milliampere. Presented are the main electric characteristics of normalized Φ KI -2 (FKD-2), FKD-3, FKD-4 and FKD-5 photoconverters with following dimensions: 1, 1.5, 2 and 3 cm². The output voltage of these converters is 0.4 volt at an illuminance of 100 milliwatt/cm², the efficiency -

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5/058/62/000/008/129/134 A160/A101

The design and the electric ...

8%, the output current 18 - 50 milliampere, and the output power - 7.2 - 20 milliwatt. To obtain a strong current, the photoconverters are arranged in parallel in sections and groups. A description is given of the various designs of batteries: for boost charging the storage battery of electric watches, for feeding electronic devices, a stationary battery for charging the storage battery of telemetering devices with a power of 7 watt, a semi-portable battery of foldingtype design with an area of 1 m^2 and a power of 40 watt, a portable battery for feeding portable radio stations, a battery with an automatic turning device operating synchronously with the motion of the Sun. When using reflecting mirrors for concentrating the light on photoconverters, the specific power of the battery increases and its costs decrease. The working principle of the reflectors is considered and their best parameters are determined. The load characteristics of photoconverters without a reflector and with reflectors of various sizes and various inclines of the generatrix were taken during solar lighting. The experimental measurings showed that the power of the solar battery with a reflector is 1.6 - 2.2 higher than without a reflector, and that it is possible to obtain a power of 1.0 - 1.6 watt per 1 dm² at an illuminance of 100 milliwatt/cm2. In this case, the emf decreases due to an additional heating of the

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The design and the electric ...

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photoconverters, and the short-circuit current quickly increases. Recently, a battery with an area of $4.5~\rm dm^2$ was developed. Its output power is $6.5~\rm watt$ at an illuminance of $100~\rm watt/cm^2$. This corresponds to a specific power of $1.44~\rm watt/dm^2$.

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. V. Shch.

[Abstracter's note: Complete translation]

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Daletskiy, G.S., and Shavrin, N.V. AUTHORS:

Design and electrical characteristics of silicon

TITLE: photo-converter batteries

Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, abstract 8-3-86 p (In collection: Teplo-PERIODICAL:

energetika, no. 3, M., AN SSSR, 1961, 137 - 151)

TEXT: The authors described various types of silicon photo-converters, differing in their dimensions, form, current-pickup geometries ters, differing in their dimensions, form, current-pickup geometries and armoring. The diameters of circular photo-converters vary from 22 to 45 mm, their efficiency is 7 - 9 %, the maximum specific power is 7 - 9 mW/cm², the voltage is 0.38 - 0.4 V, and the current is 20 is 7 - 9 mW/cm², the voltage is 0.38 - 0.4 V, and the current is 20 - 24 mA per 1 cm². The main electrical characteristics are shown for \$4.6-2 (FKD-2), \$4.6-3 (FKD-3), \$4.6-4 (FKD-4) and \$6.6-5 (FKD-5)\$ type normalized photo-converters of dimensions 1, 1.5, 2 and 3 5) type normalized photo-converters of dimensions 1, 1.5, 2 and 3 cm²; the output voltage is 0.4 V for an illuminance of 100 mW/cm², the efficiency is 8 %, the output current 18 - 50 mi and the output the efficiency is 8 %, the output current 18 - 50 mA and the output power 7.2 - 20 mW. In order to obtain a large current, the photo-Cara 1/3

S/194/62/000/008/044/100 D295/D308

dm² has been recently developed with 6.5 W output power for an illuminance of 100 W/cm², which corresponds to a specific power of 1.44 W/dm². [Abstracter's note: Complete translation.]

DALETSKIY, G.S.; KNIGIN, P.I.; LANDSMAN, A.P.; FLYUSHCH, O.P.; SHAVRIN, N.V.; YAGUDAYEV, M.D.

Studying the effect of concentrated solar energy on the service characteristics of solar (silicon) photobatteries. Izv.AN Uz. SSR.Ser.fiz.mat.nauk 6 no.1:49.52 %62. (MIRA 15:4)

l. Fiziko-tekhnicheskiy institut AN UzSSR i Vsesoyuznyy nauchnoissledovateliskiy institut istochnikov toka. (Solar batteries)

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ZAZOVSKAYA, I.A.; PDSPeLOVA, M.V.; SHAVALIM, U.N.

Evaluating the dimensions of mosaic blocks by the width of Y-ray lines. Fiz. met. i metalloved. 14 no.2:301-303 Ag '62. (MIRA 15:12)

1. Petrozavodskiy gosudarstvennyy universitet.
(Y-ray crystallography)

21(1) SOV/56-36-5-6/76 Klimentovskaya, M. V., Shavrin, P. I. AUPHORS: Investigation of the Excited States of Re TITLE: (Izucheniye vozbuzhdennykh sostoyaniy Re 187) Zhurnal eksperimental noy i teoreticheskoy fiziki, 1959, PERIODICAL: Vol 36, Nr 5, pp 1360-1365 (USSR) The decay of W 187 and the levels of $\mathrm{Re}^{\,187}$ have already frequently been investigated. The present paper first gives ABSTRACT: a table containing the results obtained by earlier and by the present paper. For the transitions χ_1 to χ_7 the energies, intensities, internal conversion coefficients, K/L and the multipolarity of individual lines are entered. For their investigations the authors used a device which is based on the scintillation method (Fig 2). Work was carried out with the aid of a cylindrical NaJ(T1)-crystal. Part of the V-spectra recorded is shown by figures 3 and 4. Among other things, the internal conversion coefficient of 1-transition (134 kev) was determined as amounting to 2.0+0.2. Further, the angular momenta of the excited Card 1/3

Investigation of the Excited States of Re 187

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states and the multipolarities of the 7-transitions were determined by measuring the angular correlation of the 552-134 kev, the 480 - 134 kev, and the 72-134 kev 7-cascades. For the angular correlation of the first $W(\theta) = 1 + (0.023 \pm 0.014)\cos^2\theta$ is obtained, which corresponds to the transition sequence $\frac{6}{2}(E1)\frac{7}{2}(M1+E2)\frac{5}{2}$ if the ratio of the E2 and M1 amplitudes of the radiation mixture amounts to $\frac{6}{2} = I(E1)/I(M2) = (2.2\pm0.5).10^{-2}$ for the 134 kev transition. For the same cascade one obtains for the transition sequence $\frac{5}{2}(E2)\frac{9}{2}(E1)\frac{7}{2}(E1)\frac{7}{2}$ for the 134 kev transition $\frac{6}{2} = (2.5\pm1.5).10^{-2}$ and for the transition sequence $\frac{9}{2}(E1)\frac{9}{2}(E1)\frac{7}{2}(E1+E2)\frac{5}{2}$: $\frac{6}{2} = (1.7\pm0.7).10^{-2}$. If the equation for $W(\theta)$ is written down in the general form $W(\theta) = 1+a_2\cos^2\theta$, different a2-values naturally hold for different transition sequences. The ratios for these three different sequences are illustrated

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Investigation of the Excited States of Re 187

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by the diagram of figure 5, which shows the curves

 $W(180^{\circ})$ ${\int_{0}^{2}}$). The authors finally thank A. S. Melioranskiy, W(90°)

V. I. Luchkov and V. P. Kudryashov for assisting in assembling the test apparatus, and they also thank V. F. Tsarakayev, Ya. A. Kleyman and A. M. Safronov for taking part in measurements; they further express their gratitude to Professor I. S. Shapiro for his interest and valuable advice. There are 5 figures, 1 table, and 15 references, 4 of which are Soviet.

ASSCCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo (Institute of Nuclear Physics of Moscow State University)

SUBMITTED:

hovember 25, 1958

Card 3/3

32717 \$/560/61/000/009/007/009 D045/D114

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AUTHORS: Savenke, I. A., Pisarenko, N. F., and Shavrin, P. I.

Dosimetric measurements on the second Soviet space vehicle

SOURCE: Akademiya nauk SSSR. Iskusstvennyye oputniki Zemli. No. 9, Moscow, 1961, 71-77

TEXT: Dosimetric measurements taken on board the second Soviet space vehicle, launched on August 19, 1960, are studied and discussed. The ship was equipped with two scintillation counters and two gas-discharge counters. One of the scintillation counters was attached to the external part of the vehicle and was used for registering soft electrons with an energy of up to 30 keV. The other scintillation counter, used for registering \(\begin{align*} \text{-quanta and charged particles, and the TEM -5 (TSS-5) and CTC -5 (STS-5) gas-discharge counters were installed inside the vehicle beside the capsule containing the experimental animals. The results of measuring radiation intensity over one section of the flight trajectory are shown in fig. 1. An analysis of the readings of the external scintillation counter shows that the radiation contained in the radiation belts is anisotropic, the energy flow under a layer

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of matter 2-10-3 g. cm-2 being approximately equal to 1010 evecm-2 sec-1, The dose of radiation absorbed within the vehicle totalled, on the average. I wrad per day. Radiation registered in the area of the geomagnetic equator was shown to consist of scarcely-ionized charged particles and K -quanta with a mean energy of not more than 6.10 ev. Since, with increasing latitude, these readings change by approximately the same degree, this deduction also holds true for the polar regions. An analysis of the readings obtained established that the radiation belts were located nearly 320 km from the Earth's surface. A figure is included showing the varying distribution of intensity of absorbed radiation over different areas of the Earth. The highest quantity of absorbed radiation (50 mrad/day) was registered near the coast of Brazil. The presence of protons suggested that this area was part of the inner radiation belt. Discussing the composition of the total absorbed dose, the authors state that 80% of it consisted of primary and secondary charged particles of cosmic origin, 15% consisted of all types of X -radiation, and 5% of protons of the inner radiation belt. The RBE values for the last two components were no greater than 1 and 10 respectively: if the RBE value for charged cosmic particles is accepted as 7 (exact values

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Dosimetric measurements on ...

could not be obtained), the biological equivalent of the absorbed dose reristored on the second space vehicle will be equal to 40 mrem/day. If the correction for the tissue non-equivalent of the crystal of sodium iodide is taken into consideration, the absorbed dose will be equal to 50 mrcm/day. The following conclusions were drawn: (1) The absorbed dose of 7 mrad/day, equivalent to 50 mrem/day, can be considered safe for long flights along a trajectory similar to that of the second Soviet space vehicle during the period when the Sun is in its quiet state. It is assumed, of course, that an astronaut will be protected by a layer of substance similar to that surrounding the radiometric equipment on board the second space vehicle; (2) Chromospheric flares on the Sun can essentially increase the dose. S. F. Papkov, A. F. Tupikin, G. I. Bol'shakova, L. K. Bocharov and S. N. Vernov are mentioned for their cooperation in the work. There are 2 figures and 10 references: 7 Soviet-bloc and 3 non-Soviet-bloc. The English-language references are: J. A. Simpson, Astrophys. J. Suppl. Series, 4, 378, 1960; R. L. Arnoldy, R. A. Hoffman, J. R. Winkler, J. Geophys. Res., 65, 1361, 1960; J. A. Van Allen, J. Geophys. Res., 64, 217, 1959.

SUBMITTED: April 3, 1961

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Hallometric equipment on ...

the comprent was installed on the space vehicle, it was tested for resist-ance to external effects such as vibrations, oscillations and tangernture, and calibrated. The calibration system is described in full. The energy threshold of the registering channel of the scintillation counter was determined to follows:

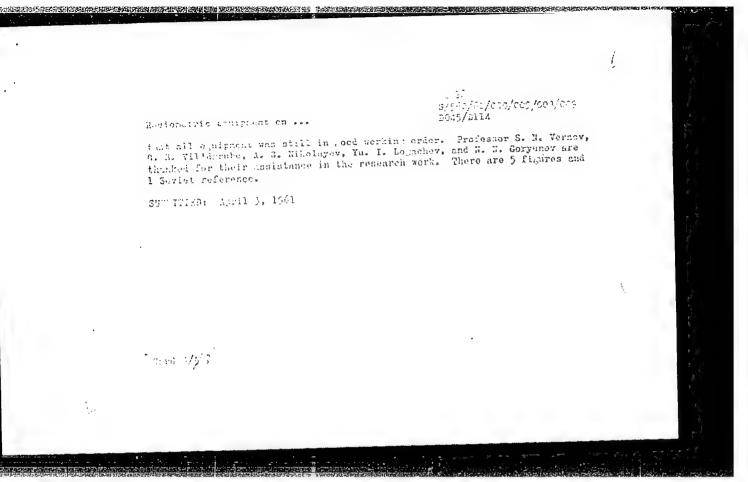
$$E_{\text{threshold}} = \frac{v_1}{kV} \xi_0$$
,

where $V_{\rm c}$ = the threshold of the first trigger of the flip-flop system (in volta), \hat{x} = the coefficient of amplification of the amplifier, V = value of the line of the input of the amplifier, and \hat{y}_0 = energy of \hat{y} -quanta Cr137 the late the input of the amplifier, and \hat{y}_0 = energy of \hat{y} -quanta Cr137

equal to 661 keV. The registering channel of the coincillation counter installed on loand the second Soviet space whiche had the following characterstalled on loand the second Soviet space whiche had the following characterstalled on loand the second Soviet space whiche had the following characterstalled on loand the second Soviet space which had the following characters at the second secon concluding remarks, the authors state that careful post-flight checks showed

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3.2420 (2806, 1049, 1482)

33306 \$/560/61/000/010/004/016 D299/D302

17 2400

AUTHORS:

Vernov, S. N., Savenko, I. A., Shavrin, P. I.,

Nesterov, V. Ye., and Pisarenko, N. F.

TITLE:

Outer radiation belt of the earth at 320 km

altitude

SOURCE:

Akademiya nauk SSSR. Iskusstvennyye sputniki

Zemli. no. 10. Moscow, 1961, 34-39

The investigations carried out by means of the 2nd and 3rd Soviet artificial satellites indicated the existence of an outer radiation belt, sharply delimited by the high-latitude region. The scintillation- and Geiger-counters on board the 2nd Soviet Sputnik permitted a detailed study of the outer radiation belt in the vicinity of the earth and its delimitation as a function of longitude. The autonomous memory-device on board the Sputnik yielded continuous data on radiation intensity at altitudes of 306 - 339 km over the entire terrestrial globe for

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latitudes of + 65°. The scintillation counter consisted of a cylindrical NaJ(T1)-single crystal and of the photomultiplier からゾール (FEU-16)。 The Geiger counter was of type CTC-5 (STS-5), which is a halide-counter. A figure shows the radiation intensity recorded by means of the scintillation counter at various points of the globe. It was proved that the sharp increase in counting rate, which could not be explained by the latitude effect, is due to the radiation belts of the earth; this was done by analyzing the connection between the regions of increased intensity in the Northern and Southern Hemispheres, by studying the connection between these regions and the earth's magnetic field, as well as the composition and energy of the Thus, the zones of increased radiation in the Norradiation. thern Hemisphere are related to those in the Southern Hemisphere by the lines of force of the geomagnetic field which determines the position of the radiation belt at an altitude of 320 km. In order to determine the composition and to estimate the energy

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Outer radiation belt of ...

of the radiation, the readings of the scintillation—and Geiger-counters were compared. Hence, it was found that the radiation in question is gamma-radiation with energies of the order of 100 = 300 kev. The mean energy of the secondary electrons, arising in the single crystal by interaction with the gamma-

radiation, is of the order of 10^5 ev. The clear connection between the zones of increased intensity in the Northern and Southern Hemispheres and the nature of the radiation and its energy are proof that the recorded increase in intensity is due to electrons of the outer radiation belt. In general, no direct relation was observed between the intensity and the strength of the magnetic field. This is apparently due to the short lifetime of electrons of the outer radiation belt at the altitudes under consideration compared to the drift-time around the earth. An estimate of the lifetime of electrons with E = 300 keV yielded the value of $10^6 - 10^8 \text{ sec.}$; hence, the hypothesis of local acceleration of electrons within the geomagnetic field is

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Outer radiation belt of ...

more likely than the neutron hypothesis of electron origin.

Abstracter's note: The designation "Van Allen Belt" is not used at all in the Russian text. There are 2 figures, 2 tables and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: E. H. Vestine, W. L. Sibley, Planet Space Sci., 1, 285, 1959; J. B. Cladis, A. J. Dessler, J. Geophys. Res., 66, 343, 1961; J. A. Welch, W. A. Whitaker, J. Geophys. Res., 64, 909, 1959.

SUBMITTED:

May 23, 1961

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5.2420 (1049, 2806, 1482)

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D299/D302

17 2400

AUTHORS:

Vernov, S. N., Savenko, I. A., Shavrin, P. I.,

and Pisarenko, N. F.

TITLES

Observation of inner radiation belt at an

altitude of 320 km in the region of the south-

Atlantic magnetic anomaly

SOURCE:

Akademiya nauk SSSR. Iskusstvennyye sputniki

Zemli, no. 10. Moscow, 1961, 40-44

TEXT: In contradistinction to the other zones of increased radiation-intensity (which form the outer belt), the magnetic anomaly near the Brazilian coast cannot be related to the outer radiation belt owing to its geographical position and to the presence of a large number of penetrating particles in the radiation. A map shows the regions of increased intensity and, in particular, the points at which the intensity exceeded 3.6

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Observation of inner.,

counts of cm² sec. ; all these points were concentrated in the southern Atlantic. The readings of the Gerger- and scintillation-counters are listed in a table and shown in a figure. Conclusions: (1) The increase in radiation intensity, observed at an altitude of 320 km above the Brazilian magnetic anomaly, is due to an inner radiation belt. This belt is not observed to the north of the geomagnetic equator. (2) At low geomagnetic latitudes, the proton component of the inner belt prevails (in the region of the anomaly). With higher latitudes, the X-ray intensity increases (arising from electron bremsstrahlung on the space-ship hull), whereas the proton component decreases. (3) At magnetic latitudes higher than 40 S, the outer radiation belt appears. (4) A transition region is found between the outer and inner radiation belts, where the intensity of the bremsstrahlung is weaker-by a factor of two and four respectively-than at the maximum of intensity of the internal and external belts. (5) The cut between the inner and outer radia-

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Observation of inner

tion belts, very clearly observed in the Northern Hemisphere by means of the 3rd Soviet Sputnik, is practically non-existent in the region of the Brazilian anomaly. These facts may shed light on the origin of the outer radiation belt. There are 2 figures, 1 table and 7 references: 3 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: A. J. Dessler, J. Geophys. Res., 64, 713, 1959; S. Yoshida, G. H. Ludwig, J. A. Van Allen, J. Geophys. Res., 65, 807, 1960; J. A. Van Allen, L. A. Frank, Nature, 183, 430, 1959; J. A. Van Allen, L. A. Frank, Nature, 184, 219, 1959.

SUBMITTED:

May 23, 1961

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3,2410 (2806, 2205, 2705, 2805)

3330⁸ S/560/61/000/010/006/016 D299/D302

17.2400

AUTHORS:

Savenko, I. A., Shavrin, P. I., Nesterov, V.

Ye., and Pisarenko, N. F.

TITLE:

Cosmic-ray equator from data obtained by means

of the 2nd Soviet Sputnik

SOURCE:

Akademiya nauk SSSR. Iskusstvennyye sputniki

Zemli. no. 10. Moscow, 1961, 45-47

TEXT: The use of artificial satellites for determining the equator of cosmic radiation has the following advantages over terrestrial investigations: (1) many intersections of the equator at various points during a comparatively short period and (2) direct recording of the primary component of cosmic radiation—hence, the possibility of a detailed study of the equator of cosmic radiation at various moments of time, and, in particular, the possibility of studying the effect of various geo-

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Cosmic-ray equator ...

physical phenomena on its position. Thereby, it is no longer necessary to introduce barometric temperature and temporal—variation corrections. The equipment of the 2nd Soviet Sputnik contained a Geiger counter, an autonomous memory—device, and telemetering apparatus. The memory device permitted measuring the latitude dependence of primary cosmic radiation at each intersection of the equator. In processing the data, the empirical formula describing the latitude dependence was constructed only from experimental points for latitudes below 40° structed only from experimental points for latitudes below 40° structed only from experimental points for latitudes below 40° structed only from experimental points for latitudes below 40° structed only from experimental points for latitudes of the geographical equator, were used to determine the position of the minima of cosmic—ray intensity (i.e., the equator of cosmic radiation). The obtained equator of cosmic radiation is incompatible with a dipole model of the geomagnetic field. The obtained equator is in good agreement with that calculated by Quenby and Weber. as well as with that calculated by Kellogg and Schwartz. There are 1 figure and 8 non-Soviet-bloc

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